16-546.fm Page 1 Tuesday, July 20, 1999 4:25 PM

Cat. No. 16-546

OWNER'S MANUAL

Please read before using this equipment.

MODEL 109

4-Head HQ VHS VCR

OPTIMUS®

IMPORTANT SAFETY INSTRUCTIONS

1. **Read instructions** — All the safety and operating instructions should be read before the appliance is operated.
2. **Retain Instructions** — The safety and operating instructions should be retained for future reference.
3. **Heed Warnings** — All warnings on the appliance and in the operating instructions should be adhered to.
4. **Follow Instructions** — All operating and use instructions should be followed.
5. **Cleaning** — Unplug the VCR from the wall outlet before cleaning it. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
6. **Attachments** — Do not use attachments not recommended by the VCR manufacturer as they may cause hazards.
7. **Water and Moisture** — Do not use this VCR near water — for example, near a bath tub, wash bowl, kitchen sink, or laundry tub, in a wet basement, or near a swimming pool.
8. **Accessories** — Do not place this VCR on an unstable cart, stand, tripod, bracket, or table. The VCR may fall, causing serious injury to someone and serious damage to the appliance. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer or sold with the VCR. Any mounting of the appliance should follow the manufacturer's instructions and should use a mounting accessory recommended by the manufacturer. An appliance and cart combination should be moved with care.

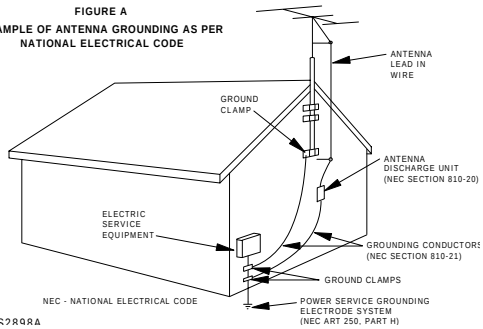
   Quick stops, excessive force, and uneven surfaces may cause an appliance and cart combination to overturn.

9. **Ventilation** — Slots and openings in the cabinet and the back or bottom are provided for ventilation and to ensure reliable operation of the VCR and to protect it from overheating. These openings must not be blocked or covered. The openings should never be blocked by placing the VCR on a bed, sofa, rug, or other similar surface.

   This VCR should never be placed near or over a radiator or heat register. This VCR should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.
10. **Power Sources** — This VCR should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your home, consult your appliance dealer or local power company. For VCRs intended to operate from battery power or other sources, refer to the operating instructions.
11. **Grounding and Polarization** — This VCR is equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.
12. **Power-Cord Protection** — Power-supply cords should be routed so they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the appliance.
13. **Outdoor Antenna Grounding** — If an outside antenna or cable system is connected to the VCR, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges.

    Section 810 of the National Electrical Code, ANSI/NFPA No. 70-1984, provides information with respect to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

FIGURE A
EXAMPLE OF ANTENNA GROUNDING AS PER NATIONAL ELECTRICAL CODE


ANTENNA LEAD IN WIRE
GROUND CLAMP
ANTENNA DISCHARGE UNIT (NEC SECTION 810-20)
ELECTRIC SERVICE EQUIPMENT
GROUNDING CONDUCTORS (NEC SECTION 810-21)
GROUND CLAMPS
NEC - NATIONAL ELECTRICAL CODE
POWER SERVICE GROUNDING ELECTRODE SYSTEM (NEC ART 250, PART H)

© 1996 Tandy Corporation.
All Rights Reserved.
Optimus is a registered trademark used by Tandy Corporation
RadioShack is a trademark used by Tandy Corporation.

14. **Lightning** — For added protection for this VCR receiver during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the VCR due to lightning and power-line surges.
15. **Power Lines** — An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.
16. **Overloading** — Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.
17. **Object and Liquid Entry** — Never push objects of any kind into this VCR through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the VCR.
18. **Servicing** — Do not attempt to service this VCR yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.
19. **Damage Requiring Service** — Unplug this VCR from the wall outlet and refer servicing to qualified service personnel under the following conditions:
    - When the power-supply cord or plug is damaged or frayed.
    - If liquid has been spilled or objects have fallen into the VCR.
    - If the VCR has been exposed to rain or water.
    - If the VCR does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions, as improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the VCR to its normal operation.
    - If the VCR has been dropped or the cabinet has been damaged.
    - When the VCR exhibits a distinct change in performance — this indicates a need for service.
20. **Replacement Parts** — When replacement parts are required, be sure the service technician has used replacement parts, specified by the manufacturer, that have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, injury to persons or other hazards.
21. **Safety Check** — Upon completion of any service or repairs to this VCR, ask the service technician to perform routine safety checks to determine that the VCR is in proper operating condition.
22. **Heat** — This VCR product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.

WARNING: To prevent fire or shock hazard, do not expose this VCR to rain or moisture.

	CAUTION	
	RISK OF ELECTRIC SHOCK. DO NOT OPEN.	

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER OR BACK. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol is intended to alert you to the presence of uninsulated dangerous voltage within the VCR's enclosure that might be of sufficient magnitude to constitute a risk of electric shock. Do not open the VCR's case.

This symbol is intended to inform you that important operating and maintenance instructions are included in the literature accompanying this VCR.

FEATURES

Your Optimus Model 109 4-Head HQ VHS VCR offers some of the most advanced features available in home video cassette recorders. Your VCR's PLL (phase-locked loop) tuning ensures precise tuning of up to 68 VHF and UHF channels and up to 125 cable channels. Its full-function remote control and on-screen programming make it easy to use.

RECORDING/PLAYBACK

Quick Timer Recording (QTR) — lets you immediately start recording with the press of a button, then stop after the length of time you specify.

1-Year, 8-Event, Digital Timer — lets you program the VCR to make up to eight unattended recordings (single, daily, or weekly) within a 1-year period.

Four Double-Azimuth Video Heads — provide superior picture quality and special effects compared to standard single-azimuth, four-head VCRs.

19 Micron Record/Play Head — provides enhanced picture quality at the EP (Extended Play) playback speed.

Auto Enhanced Picture — automatically enhances picture quality during playback.

Auto Tracking — automatically adjusts tracking when you start playback.

Automatic Playback/Rewind/Eject — automatically plays, rewinds, and ejects a tape if its record-protection tab has been removed.

Fast-Response System — positions the tape next to the playback/record head for immediate playback or recording.

Index Search — lets you quickly locate the beginning of a specific recording.

Real-Time Counter with Memory — displays the actual elapsed time a tape plays or records so you can mark and return to a desired location on the tape.

Automatic Repeat Playback — lets you set the VCR to automatically repeat a tape when the tape reaches the end of a recorded section.

TAPE MOTION CONTROLS

Shuttle Dial — lets you rewind or fast-forward the tape with a single control on the VCR.

Fast-Forward/Rewind with Visual Search — lets you quickly advance or rewind the tape while the tape is stopped or advance/rewind the tape at a faster playback speed so you can locate a desired section on the tape.

Freeze-Frame/Frame Advance — lets you stop the tape on a playback frame, then advance it one frame at a time.

Variable-Speed Slow-Motion Playback — plays a tape in slow motion and lets you vary the playback speed.

Automatic Rewind — automatically rewinds the tape to the beginning when it reaches the end of the tape during playback, recording, or fast-forwarding.

TUNING

179 Channel, Digital-PLL Tuner — lets you select up to 68 VHF and UHF antenna channels (2–69) and up to 125 cable channels (1-125).

Tuner Memory Programming — automatically stores all the active channels in your area into memory.

OTHER FEATURES

On-Screen Programming — provides helpful instructions on the TV screen for setting the clock, program timers, and quick timer recording.

Trilingual Instructions — lets you select English, French, or Spanish on-screen instructions.

Memory Sentinel — protects clock settings, tuner programming information, and timer memory settings for about 1 hour in case a power failure occurs or the power cord is unplugged.

Automatic DST (Daylight Saving Time) Adjustment — lets you set the VCR to automatically adjust the displayed time for Daylight Saving Time.

Mode Lock — prevents young children from operating the VCR and prevents you from accidentally changing the operating mode.

Audio/Video Input Jacks — let you quickly connect another audio/video device such as a camcorder to the VCR.

We recommend you record the VCR's serial number here. The number is located on the VCR's back panel.

Serial Number _____

Note: To power the remote control, you need two AA batteries (such as RadioShack Cat. No. 23-557, not supplied).

Important: Most material performed in public, such as concerts, plays, and movies, or distributed on prerecorded video tapes is copyrighted. The unauthorized recording or duplication of copyrighted material is a violation of the copyright laws of most countries and such duplication may result in fines and/or imprisonment. Note, however, that in the United States, it is not a violation of U.S. copyright laws for a consumer to record a broadcast television program for private (in-home) viewing.

16-546.fm Page 6 Tuesday, July 20, 1999 4:25 PM

CONTENTS

Before You Begin 8
Supplied Accessories 8
Using this Manual 8

Connections 9
Connecting the VCR for Playback Only 9
Using the TV's Audio/Video Input Jacks 9
Using the TV's Single VHF/UHF F-Connector 10
Using the TV's Single VHF F-Connector and Double UHF Screw Terminals 10
Connecting the VCR for Playback and Recording 11
Connecting an Antenna 11
Using the TV's Audio/Video Input Jacks 11
Using the TV's Single VHF/UHF F-Connector 12
Using the TV's Single VHF F-Connector and Double UHF Screw Terminals 12
Connecting Cable 13
Using the TV's Audio/Video Input Jacks 14
Using the TV's Single VHF/UHF F-Connector 15
Using the TV's Single VHF F-Connector and Double UHF Screw Terminals 15
Connecting an A/B Switch and a Signal Splitter 16
Setting the Output Channel Switch 16
Connecting Power 16

Preparation 17
Using the Remote Control 17
Installing the Batteries 17
A Quick Look at the Controls 17
Setting the On-Screen Programming Language 21
Setting the Clock 22
Setting the Channels the VCR Tunes To 23
Adding/Erasing Channels 24

Basic Operation 25
Watching TV 25
Using the TV's Tuner 25
Using the VCR's Tuner 25
Selecting Channels 25
Watching a Video Tape 26
Loading a Video Tape 26
Playing a Video Tape 26

Special Functions 27
Displays 27
Blue Screen 27
Operation Displays 27
Auto Display 27
Tape Motion Indicators 28

16-546.fm Page 7 Tuesday, July 20, 1999 4:25 PM

Motion Controls 28
Fast-Forward/Rewind 28
Freeze-Frame 28
Visual Search 29
Variable-Speed Slow Motion 29
Automatic Repeat Playback 30
Using the Real-Time Counter 30
Using the Zero Back Function 30
Index Search 31
Auto Tracking 31
Manual Tracking 31
Auto Enhanced Picture 32
Mode Lock 32

Recording 33
Recording Speeds 33
Tape Selection 33
Record Protection 34
Selecting the Signal to Record 34
Immediate Recording 35
Recording a Program as You Watch It 35
Recording One Program While You Watch Another 35
Quick Timer Recording 35
Automatic Timer Recording 36
Setting the Program Timer 37
Monitoring an Automatic Timer Recording 39
Checking/Changing Program Timers 39
Clearing a Program Timer 39
Dubbing (Copying) a Tape 40

Additional Information 41
Troubleshooting 41
Care and Maintenance 43
Cleaning the Video Heads 44
Servicing Your VCR 44
Storing your Video Cassettes 44
Specifications 45

BEFORE YOU BEGIN

Before you begin, please read this owner's manual carefully. It has been prepared to help you with initial setup procedures and in the everyday operation of your VCR.

Caution: Moisture condensation can sometimes accumulate on the video heads when you move your VCR from a cold location to a warmer one. When this happens, do not turn it on for 2 hours to allow condensation to evaporate.

SUPPLIED ACCESSORIES

Be sure to remove these supplied accessories before you store the packing material.

Remote Control — controls most of your VCR's functions.

75-ohm Coaxial Cable — connects the VCR's **VHF/UHF CATV OUT** terminal to your TV's antenna terminals.

USING THIS MANUAL

This manual is organized into these major sections.

Connections — describes the connections you must make before you can begin using your VCR.

Preparation — includes procedures for preparing and using the remote control, setting the on-screen programming language, selecting the broadcast signal source (TV or CATV), setting the clock, and setting the channels your VCR can tune.

Basic Operation — explains how to watch TV using the TV's or VCR's tuner, select channels using the VCR's tuner, and load and play a video tape.

Special Functions — describes the things you see on the VCR's display and the TV screen, how to fast-forward and rewind a tape, use the VCR's special playback, display, and search features, set the tracking manually, use auto repeat, index search, and mode lock.

Recording — describes the different types of recordings and gives instructions for making each one.

Additional Information — includes a troubleshooting section, care and maintenance procedures, and the VCR's specifications.

We recommend that you read through at least "Connections" on Page 9 and "Preparation" on Page 17 thoroughly, in order to make sure your VCR is correctly set up.

When reading through this manual, keep this in mind: the VCR displays menus and options on the TV you connect to the VCR, and displays other information (such as tape motion indicators, the real-time counter, etc.) on its display.

CONNECTIONS

Before you connect the VCR, read through these sections to determine the appropriate portions and the best connections for the type of terminals on your TV and other equipment you are connecting. Keep in mind that not all sections will apply to your installation.

Notes:

- If your audio/video system does not match any of the examples provided, contact your local RadioShack store for assistance.
- You can connect many different types of audio/video systems such as a receiver/ amplifier, a satellite receiver, or a cable system. These connections might require additional accessories available from your local RadioShack store.
- Disconnect power to the VCR and TV when making connections. Do not connect the VCR's power cord until you complete all other connections.

CONNECTING THE VCR FOR PLAYBACK ONLY

You can connect your VCR to the TV in one of these three ways so you can simply play and watch video tapes:

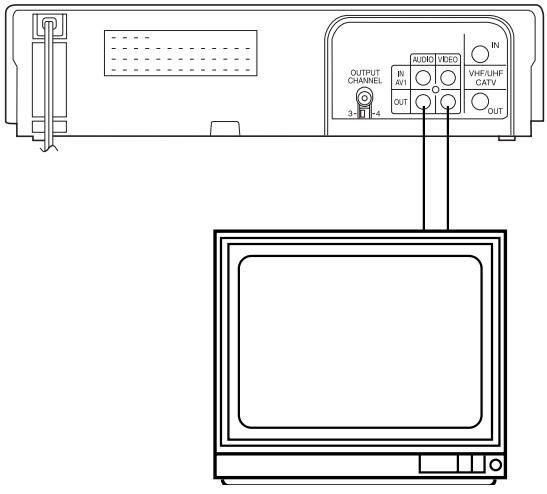
- To the TV's audio/video input jacks (if it has A/V jacks)
- To the TV's single VHF/UHF F-connector
- To the TV's single VHF F-connector and double UHF screw terminals

These connections do not let you record or watch VHF/UHF programs. If you want to both record and watch VHF/UHF programs, proceed directly to "Connecting the VCR for Playback and Recording" starting on Page 11.

Using the TV's Audio/Video Input Jacks

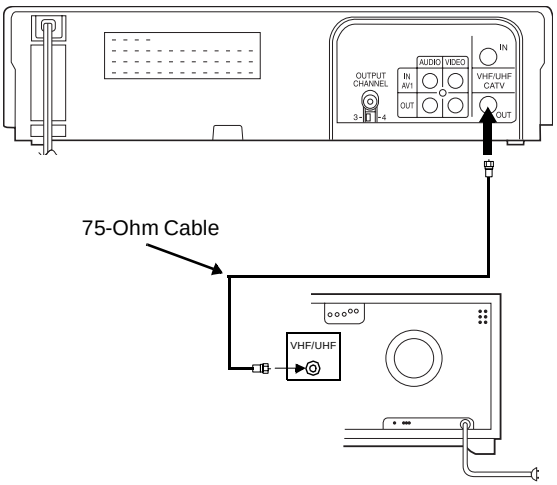
Use video quality shielded cables with phono-type connections (such as Cat. No. 15-1538, not supplied) to connect the VCR's **AUDIO/VIDEO OUT** jacks to your TV's audio/video input jacks.

Note: Do not use standard audio cables for this connection.



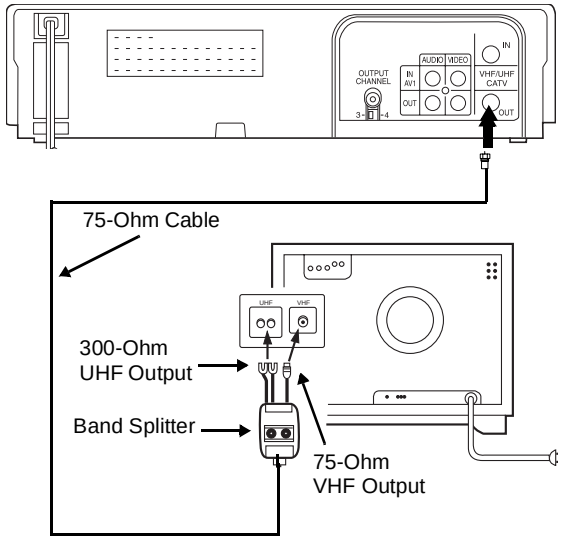
Using the TV's Single VHF/UHF F-Connector

Use the supplied 75-ohm cable to connect the VCR's **VHF/UHF CATV OUT** F-connector to your TV's VHF/UHF antenna input F-connector.



Using the TV's Single VHF F-Connector and Double UHF Screw Terminals

If your TV has a single VHF F-connector and double UHF screw terminals and your antenna is not VHF-only (channels 2–13) or UHF-only (channels 14–69), you need a band splitter (such as Cat. No. 15-1231, not supplied) to connect your VCR to the TV.



1. Connect the band splitter's 75-ohm input cable to the VCR's **VHF/UHF CATV OUT** terminal.
2. Connect the splitter's single VHF 75-ohm output F-connector to your TV's VHF input F-connector.
3. Connect the splitter's UHF 300-ohm gold wires to your TV's double UHF input screw terminals.

CONNECTING THE VCR FOR PLAYBACK AND RECORDING

To record using the VCR, you need to connect an external signal source such as an antenna (see "Connecting an Antenna") or cable system (see "Connecting Cable" on Page 13). You do not need to connect both.

Connecting an Antenna

If you use an antenna only, connect the VCR to the TV in one of these three ways:

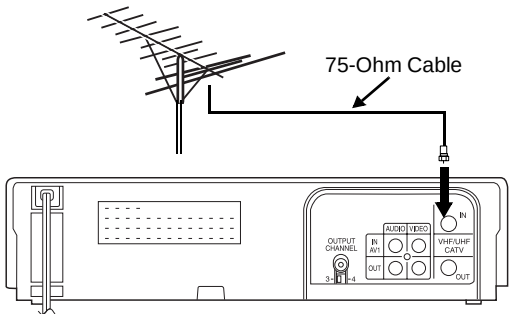
- Using the TV's audio/video input jacks (see below)
- Using the TV's single VHF/UHF F-connector (see Page 12)
- Using the TV's single VHF F-connector and double UHF screw terminals (see Page 12)

Any of these connections lets you:

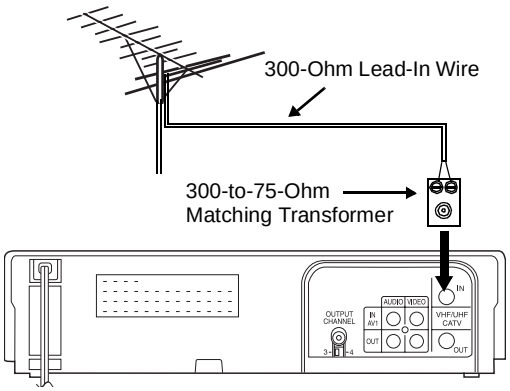
- Record and watch a channel you select with the VCR's tuner
- Watch a channel you select with the TV's tuner
- Record a channel you select with the VCR's tuner while you watch another channel you select with the TV's tuner.

Using the TV's Audio/Video Input Jacks

1. If your antenna has 75-ohm cable, connect the antenna cable directly to the VCR's **VHF/UHF CATV IN** input terminal.



If your antenna has 300-ohm lead-in wire, you need to first convert it to a 75-ohm cable by connecting a 300-to-75-ohm matching transformer (such as Cat. No. 15-1253, not supplied) following these steps.

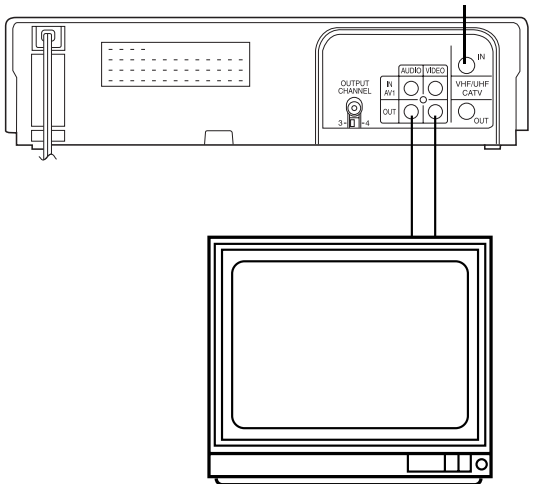


a. Connect the antenna's lead-in wire to the transformer's 300-ohm input terminal screws.

b. Connect the transformer's 75-ohm output F-connector to the VCR's **VHF/UHF CATV IN** input F-connector.

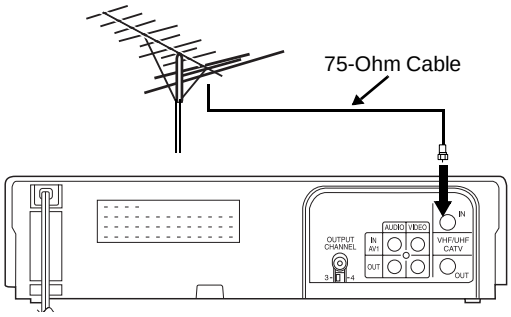
2. Use video quality shielded cables with phono-type connections (such as Cat. No. 15-1538, not supplied) to connect the VCR's **AUDIO/VIDEO OUT** jacks to your TV's audio/video input jacks.

   Note: Do not use standard audio cables for this connection.

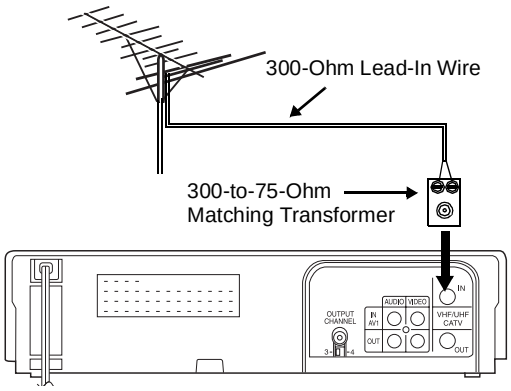


Using the TV's Single VHF/UHF F-Connector

1. If your antenna has 75-ohm cable, connect the antenna cable directly to the VCR's **VHF/UHF CATV IN** input terminal.



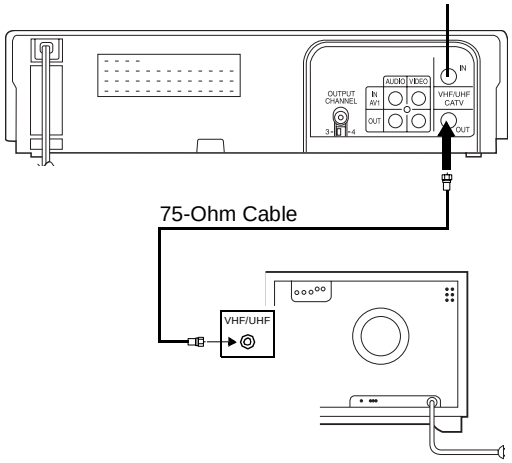
If your antenna has 300-ohm lead-in wire, you need to first convert it to a 75-ohm cable by connecting a 300-to-75-ohm matching transformer (such as Cat. No. 15-1253, not supplied) following these steps.



a. Connect the antenna's lead-in wire to the transformer's 300-ohm input terminal screws.

b. Connect the transformer's 75-ohm output F-connector to the VCR's **VHF/UHF CATV IN** input F-connector.

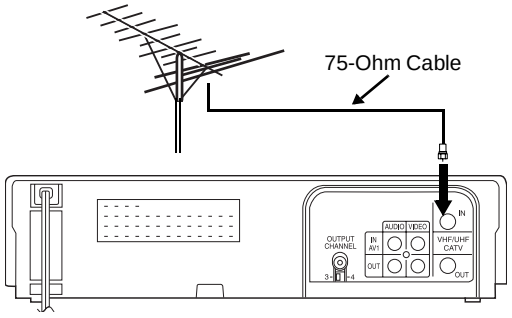
2. Use the supplied 75-ohm cable to connect the VCR's **VHF/UHF CATV OUT** F-connector to your TV's VHF/UHF antenna input F-connector.



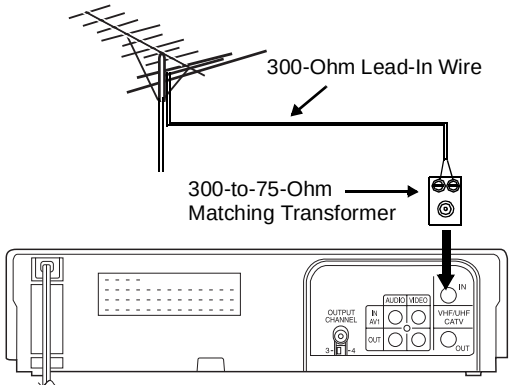
Using the TV's Single VHF F-Connector and Double Screw UHF Screw Terminals

If your TV has a single VHF F-connector and double UHF screw terminals and your antenna is not VHF-only (channels 2–13) or UHF-only (channels 14–69), you need a band splitter (such as Cat. No. 15-1231, not supplied) to connect your VCR to the separate VHF and UHF terminals.

1. If your antenna has 75-ohm cable, connect the antenna cable directly to the VCR's **VHF/UHF CATV IN** input terminal.



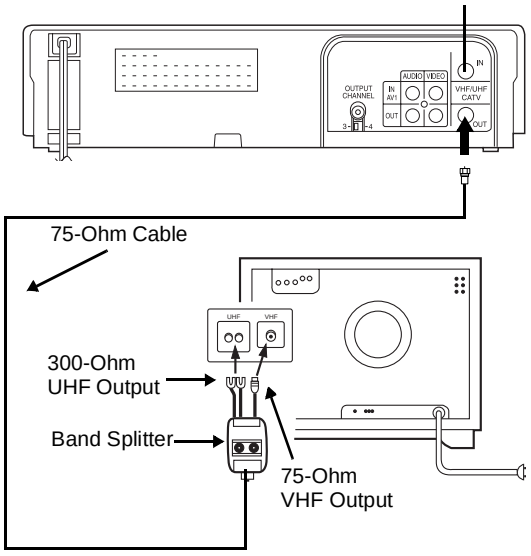
If your antenna has 300-ohm lead-in wire, you need to first convert it to a 75-ohm cable by connecting a 300-to-75-ohm matching transformer (such as Cat. No. 15-1253, not supplied) following these steps.



a. Connect the antenna's lead-in wire to the transformer's 300-ohm input terminal screws.

b. Connect the transformer's 75-ohm output F-connector to the VCR's **VHF/UHF CATV IN** input F-connector.

2. Connect the band splitter's 75-ohm input cable to the VCR's **VHF/UHF CATV OUT** terminals.



3. Connect the splitter's VHF 75-ohm F-connector to your TV's single VHF input F-connector.

4. Connect the splitter's UHF 300-ohm gold wires to your TV's double UHF input screw terminals.

Connecting Cable

You can connect the VCR to cable with or without a cable box, then connect it to the TV in one of these ways:

- To the TV's audio/video input jacks (if it has A/V jacks) (see Page 14)
- To the TV's single VHF/UHF F-connector (see Page 15)
- To the TV's single VHF F-connector and UHF double screw terminals (see Page 15)
- Using an A/B switch so you can record a scrambled channel while you watch an unscrambled channel (see Page 16)

Any of these connections let you:

- Record and watch a channel you select with the VCR's tuner.
- Watch a channel you select with the TV's tuner.
- Record a channel you select with the VCR's tuner while you watch another channel you select with the TV's tuner.

If you use cable but do not have a cable box, and your TV can receive cable broadcasts:

- You can watch and record any unscrambled channel.
- You cannot record scrambled channels.

If you use a cable box:

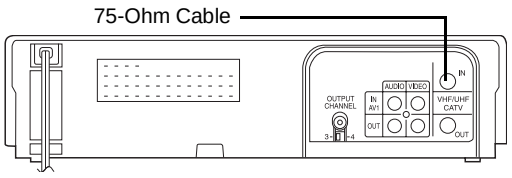
- You must select channels using the cable box.
- The cable box unscrambles premium cable channels. To watch or record premium channels, you must already subscribe to them from your cable company.

Important: Some states have laws restricting direct connections to cable wires (connections that do not go through a cable box). Check the laws in your area before you make connections.

Important Reminder to the CATV System Installer: You must comply with Section 820-40 of the National Electrical Code, which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the building's grounding system, as close to the point of cable entry as practical.

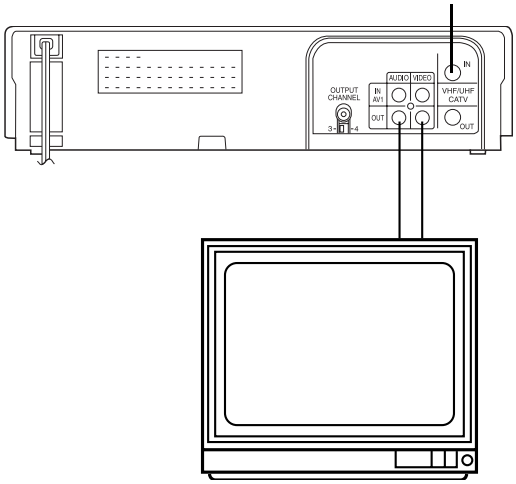
Using the TV's Audio/Video Input Jacks

1. Connect the CATV cable directly to the VCR's **VHF/UHF CATV IN** input terminal.



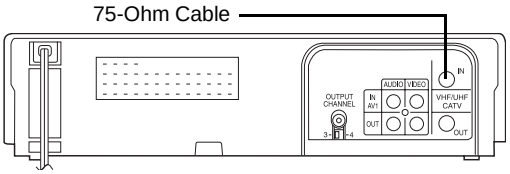
2. Use video quality shielded cables with phono-type connections (such as Cat. No. 15-1538, not supplied) to connect the VCR's **AUDIO/VIDEO OUT** jacks to your TV's Audio/Video input jacks.

   Note: Do not use standard audio cables for this connection.

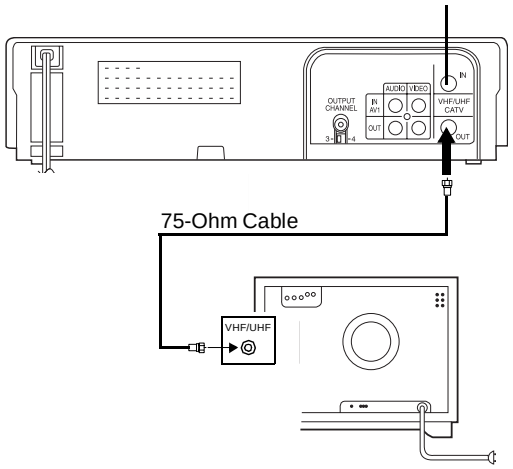


Using the TV's Single VHF/UHF F-Connector

1. Connect the CATV cable directly to the VCR's **VHF/UHF CATV IN** input terminal.



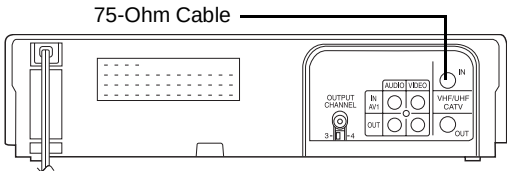
2. Use the supplied 75-ohm cable to connect the VCR's **VHF/UHF CATV OUT** F-connector to your TV's VHF/UHF antenna input F-connector.



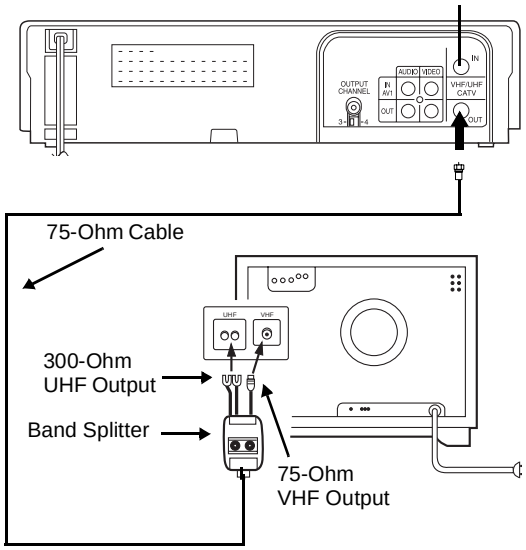
Using the TV's Single VHF F-Connector and Double Screw UHF Screw Terminals

If your TV has a single VHF F-connector and double UHF screw terminals, you need a band splitter (such as Cat. No. 15-1231, not supplied) to connect your VCR to the separate VHF and UHF terminals.

1. Connect the CATV cable directly to the VCR's **VHF/UHF CATV IN** input terminal.



2. Connect the band splitter's 75-ohm input cable to the VCR's **VHF/UHF CATV OUT** terminals.



3. Connect the splitter's VHF 75-ohm F-connector to your TV's single VHF input F-connector.

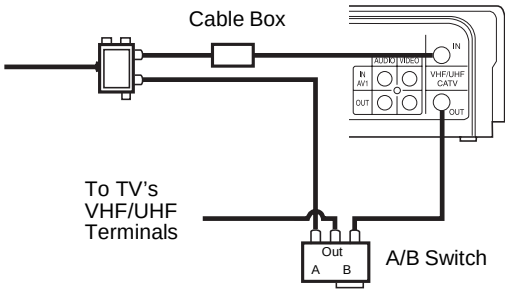
4. Connect the splitter's UHF 300-ohm gold wires to your TV's double UHF input screw terminals.

Connecting an A/B Switch and a Signal Splitter

You can record a scrambled channel and watch an unscrambled one using a high-isolation A/B switch (such as Cat. No. 15-1249, not supplied) and a hybrid splitter/combiner (such as Cat. No. 15-1141, not supplied).

Notes:

- This connection requires up to four additional 75-ohm coaxial cables (such as Cat. No. 15-1529, not supplied).
- You cannot record scrambled channels without using a cable box.
- You can record a scrambled channel while you watch an unscrambled channel.

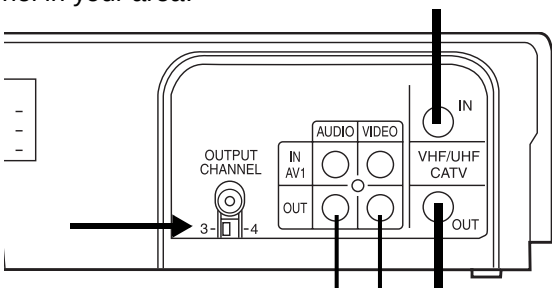


1. Connect the CATV cable to the band splitter's 75-ohm input.
2. Connect the supplied 75-ohm cable between one of the splitter's output terminals and the A/B switch's A input terminal.
3. Connect another 75-ohm cable between the splitter's other output terminal and the cable box's input terminal.
4. Connect another 75-ohm cable between the cable box's output terminal and the VCR's **VHF/UHF CATV IN** terminal.
5. Connect another 75-ohm cable between the VCR's **VHF/UHF CATV OUT** terminal and the A/B switch's B input terminal.
6. Connect another 75-ohm cable between the A/B switch's output terminal and your TV's VHF/UHF input terminal.

Note: If your TV has separate VHF/UHF terminals, connect the cable to the TV's VHF terminal only.

SETTING THE OUTPUT CHANNEL SWITCH

Set **OUTPUT CHANNEL** (on the back of the VCR) to **3** or **4**, whichever is not an active channel in your area.



When you use the VCR, it sends its output signals to the TV on the channel you selected.

Note: OUTPUT CHANNEL has no effect on the TV when the VCR is off or if you are using a TV that has separate audio/video input jacks and you set the TV to the video mode.

CONNECTING POWER

When you complete all other connections, plug the VCR's power cord into a standard AC outlet. **– –:– –** flashes on the display.

PREPARATION

USING THE REMOTE CONTROL

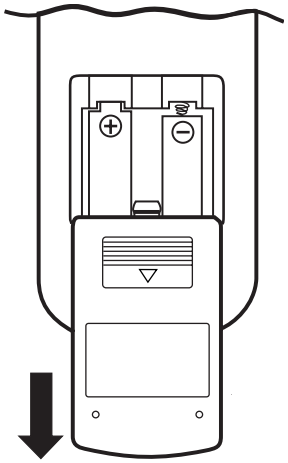
Installing the Batteries

To power the remote control, you need two AA batteries (not supplied). For the best performance, use alkaline batteries (such as RadioShack Cat. No. 23-557).

Cautions:

- Use only fresh batteries of the required size and type.
- Never leave dead batteries in the remote control.
- Dispose of dead batteries promptly and properly; do not bury or burn them.

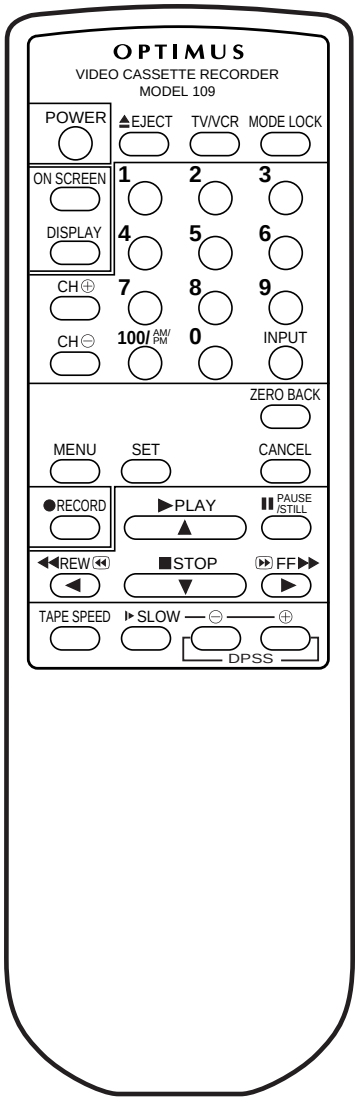
Follow these steps to install batteries.



1. Press down on the battery compartment cover and slide it in the direction of the arrow to remove it.
2. Insert fresh batteries into the compartment, as indicated by the polarity symbols (+ and –) marked inside the compartment.
3. Replace the cover.

Note: If the remote control does not work or operates poorly, replace both batteries.

A Quick Look at the Controls



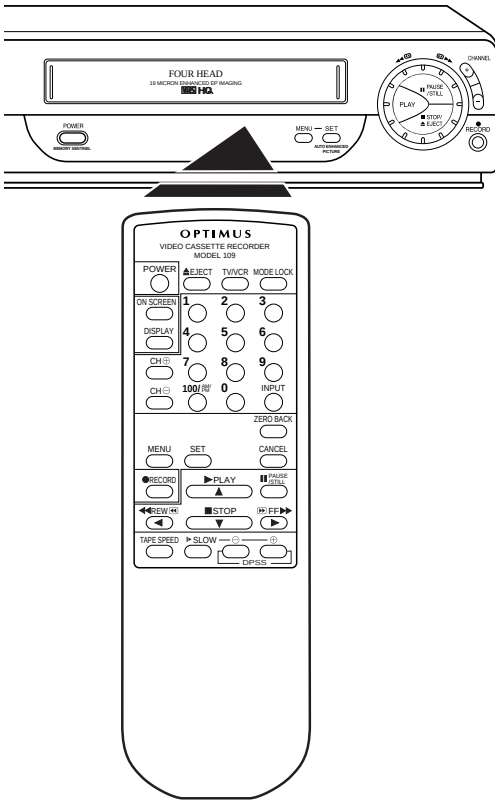
You can control most of the VCR's normal operations using the buttons on either the VCR or the remote control. However, for some features, you must use the remote control. The instructions in this manual mention only the remote control's buttons. The corresponding buttons on the VCR are shown in the following table.

Remote Control	VCR	Function
POWER	**POWER**	Turns the VCR's power on/off.
⏏ EJECT	**■ STOP/ ⏏ EJECT**	If a tape is playing**:** • Pressing **⏏ EJECT** on the remote control automatically stops playing a video tape, then ejects the cassette). • Pressing **■ STOP/⏏ EJECT** on the VCR once stops playing a video cassette tape, twice ejects the cassette. If a tape is not playing, pressing **⏏ EJECT** on the remote control or **■ STOP/⏏ EJECT** on the VCR ejects the cassette.
■ STOP/▼	**■ STOP/ ⏏ EJECT**	• **■ STOP** — Stops playing a video cassette tape. • **▼** — Moves the highlighting down while the menu is displayed. • If a tape is playing**,** pressing **■ STOP/⏏ EJECT** once stops playing a video cassette tape, twice ejects the cassette. • If a tape is not playing, pressing **■ STOP/⏏ EJECT** ejects the cassette.
TV/VCR		Selects either the TV's or VCR's tuner.
MODE LOCK		Locks in any selected operating mode (see "Mode Lock" on Page 32).
ON SCREEN		Displays the VCR's current modes (see "Operation Displays" on Page 27).
DISPLAY		• When a tape is not playing, selects the VCR's display and alternates between the tuned channel, the tape's elapsed playing time, and the currently set time of day. • When a tape is playing, selects the VCR's display and alternates between the tape's elapsed playing time and the currently set time of day.
CH ⊕	**CHANNEL ⊕**	• Tunes the VCR to the next higher channel. • Reduces or eliminates jitter in a slow-motion picture (see "Variable Speed Slow Motion" on Page 29). • Manually adjusts the tracking (see "Manual Tracking" on Page 31).

Remote Control	VCR	Function
CH ⊖	**CHANNEL** ⊖	• Tunes the VCR to the next lower channel. • Reduces or eliminates jitter in a slow-motion picture (see "Variable Speed Slow Motion" on Page 29). • Manually adjusts the tracking (see "Manual Tracking" on Page 31).
Numbers **1-0**		Directly selects a channel, or enters other programming values.
100 / **AM/PM**		• **100 —** Selects channels 100 and larger. • **AM/PM —** Selects AM or PM when you are setting the clock and programming modes.
INPUT		Selects either the **VHF/UHF** or **AUDIO/VIDEO** input jacks as the recording source.
ZERO BACK		Rewinds the tape to the point where the elapsed time reads 0:00.0.
MENU	**MENU**	Displays the main menu on the TV's screen for about 60 seconds.
SET	**SET**	Once you select the desired function from the main menu, pressing **SET** enters that function. **Note:** You can use **SET** only while the main menu appears on the TV's screen.
CANCEL		Resets the tape elapsed playing time to 0:00.0.
● **RECORD**	● **RECORD**	Starts recording on a video cassette tape.
► **PLAY/▲**	**PLAY**	• ► **PLAY** (remote control) — Plays video cassette tape. • **PLAY** (VCR front panel) — Plays video cassette tape. • ▲ — Moves the highlighting up while the menu is displayed.
❚❚ **PAUSE /STILL**	❚❚ **PAUSE /STILL**	• **PAUSE** — temporarily stops playing a tape and continues to show the still image of the recording. • **STILL** — advances the image one frame at a time.

Remote Control	VCR	Function
◄◄ **REW** ◄◄ **/** ◄	◄◄ ◄◄ (Shuttle Dial)	• ◄◄ **REW** — quickly rewinds a video cassette tape if the tape is stopped. Does not show a picture on the TV screen. • ◄◄ — quickly plays a cassette tape backward so you can find a desired section of a recording. • ◄ — Moves the highlighting left while the menu is displayed. • Rotate the VCR's shuttle dial counterclockwise to select ◄◄ ◄◄ for rewinding. The shuttle dial automatically returns to its center position when you release it.
►► **FF** ►► **/** ►	►► ►► (Shuttle Dial)	• ►► — quickly plays a cassette tape forward so you can find a desired section of a recording. • **FF** ►► — quickly advances a video cassette tape if the tape is stopped. Does not show a picture on the TV screen. • ► — moves the highlighting right while the menu is displayed. • Rotate the VCR's shuttle dial clockwise to select ►► ►► for fast-forwarding. The shuttle dial automatically returns to its center position whenever you release it.
TAPE SPEED		Selects the SP or EP tape speed.
▌► **SLOW**		Starts slow-motion playback during normal playback, freeze-frame, quick-motion, or visual search.
⊖ **DPSS** ⊕		• During slow-motion play, varies the slow-motion playback speed (forward or reverse) from 1/30 to 1/5 of the normal playback speed. • During normal play, skips forward or backward to the next recording on a tape (see "Index Search" on Page 31).
	AUTO ENHANCED PICTURE	Automatically enhances picture quality during playback.

For the best results, aim the remote control's signal emitter (on the remote control's top end) toward the VCR's display, and press the desired function button(s).



SETTING THE ON-SCREEN PROGRAMMING LANGUAGE

1. Press **POWER**.

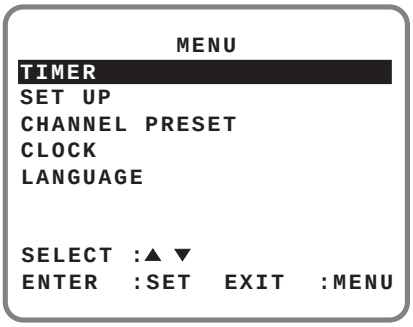
2. If you connected the VCR to your TV's audio/video input jacks, proceed directly to Step 3.

   If you connected the VCR to your TV's single VHF/UHF F-connector or its separate VHF and UHF screw terminals, turn on your TV and tune it to the same channel you set the VCR's **OUTPUT CHANNEL** switch to (3 or 4).

3. If you connected the VCR to your TV's audio/video input jacks, set the TV to the VIDEO or AUX mode.

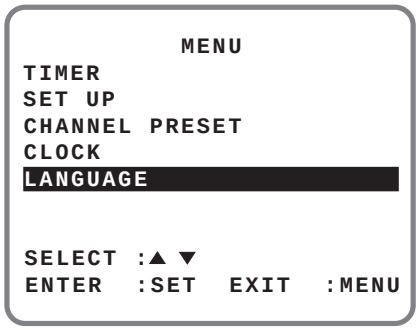
   If you connected the VCR to your TV's single VHF/UHF F-connector or its separate VHF and UHF screw terminals, press **TV/VCR** so **VCR** appears on the VCR's display.

4. Press **MENU** to display the main menu on the TV screen.

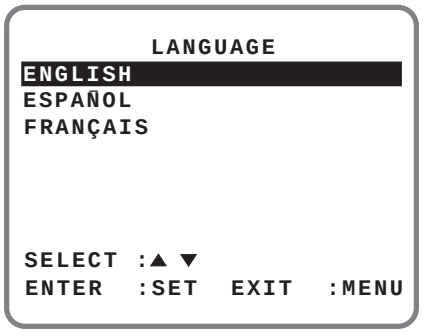


Note: If you have not selected a language since you connected power, the language setting menu automatically appears on the TV screen when you press **MENU**. Skip to Step 6.

5. Repeatedly press ▲ or ▼ until **LANGUAGE** is highlighted on the displayed menu. Then press **SET**.



6. Repeatedly press ▲ or ▼ until the language you want, **ENGLISH**, **ESPAÑOL**, or **FRANÇAIS**, is highlighted, then press **SET**. The VCR stores the language you selected and the menu disappears.



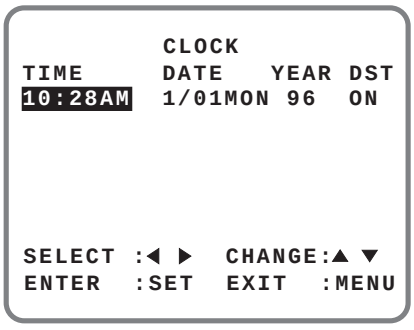
Each time you press **MENU** or **ON SCREEN**, the displays on the TV's screen appear in the selected language.

SETTING THE CLOCK

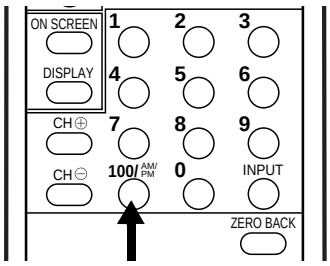
Notes:

- If you enter an invalid date or time (for example, 55 for the date), the VCR does not accept nor record the entry and the display returns to the previous setting. Re-enter the correct date or time.
- During the setting procedure, you can press ▲ or ▼ to advance or go back one setting. Press and hold either button to advance rapidly. However, once you use the remote control's number buttons, pressing ▲ or ▼ returns the data to the original setting.
- You can also use the front panel shuttle dial to move to another setting: rotate it clockwise to advance to the next item, or counterclockwise to return to the previous item.
- The VCR's memory sentinel feature protects the clock and your automatic and quick timer recording settings for up to 1 hour in case a power failure occurs or the power cord is temporarily unplugged.

1. Press **MENU** to display the main menu.
2. Repeatedly press ▲ or ▼ until **CLOCK** is highlighted, then press **SET**. The clock setting menu appears on the TV screen.



3. Use the number keys to enter the correct time (hour and minute), then press **100/**$^{AM/}_{PM}$ to select AM or PM.



For example, to set 10:28 AM, press **1**, **0**, **2**, and **8**, then press **100/**$^{AM/}_{PM}$ to select AM.

Note: The VCR accepts the last three or four valid entries as the time. For example, if you enter **1**, **3**, **3**, and **5**, the VCR stores it as 3:35.

4. Press ▶ to highlight **DATE**. Then use the number keys to enter the correct date (month and day). For example, to set February 15, press **0**, **2**, **1**, and **5**.

Note: The day of the week is automatically set; however, it might be temporarily incorrect if the year is not set yet.

5. Press ▶ to highlight **YEAR**. Then use the number keys to enter the last two digits of the current year. For example, to set 1996, press **9** and **6**.

6. Press ▶ to highlight **DST**. To set daylight saving time (DST), press ▲ or ▼ so **ON** appears on the display.

When you set **DST** to **ON**, the VCR automatically adds one hour to all the displayed times starting from the first Sunday in April, and subtracts one hour from all displayed times on the last Sunday in October.

7. If the information you entered is not correct, repeatedly press ◀ or ▶ to move the cursor to the incorrect information, then enter the correct information.

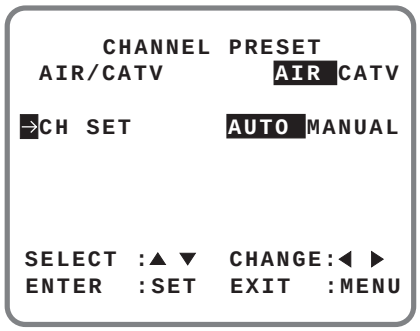
If the information you entered is correct, press **SET**. The screen disappears.

SETTING THE CHANNELS THE VCR TUNES TO

You can have the VCR automatically store all active channels in your area into its memory, and you can add to or remove the stored channels.

1. Turn on your TV and VCR.
2. Press **MENU** to display the main menu.
3. Press ▼ twice to highlight **CHANNEL PRESET**, then press **SET**. The channel preset menu appears.
4. Select the input signal source (**AIR** or **CATV**).

AIR — If you connected an antenna or cable without a cable box to the VCR, press ◀ or ▶ so **AIR** is highlighted, then press ▼ so an arrow appears next to **CH SET**.



CATV — If you connected cable and use a cable box:

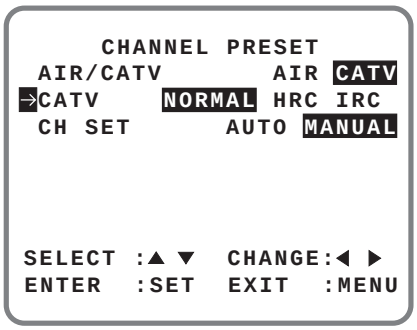
a. Press ◀ or ▶ until you highlight **CATV**, then press ▼.

b. Press ◀ or ▶ to highlight the type cable you have (**NORMAL**, **HRC**, or **IRC**).

Note: Most cable systems use NORMAL, but if you are not sure what type of cable service you have, contact your cable company.

c. Press ▼ so an arrow appears next to **CH SET**.

5. Press ◀ or ▶ to highlight **AUTO** or **MANUAL**, then press **SET**.



AUTO — The VCR's tuner automatically scans through the channels (TV or CATV) and memorizes the active channels in your area. **AUTOMAT- TUN- PLEAS WAI** and the current channel number appear on the TV screen, and **CH** and the current channel appear on the VCR's display. After scanning all the channels, the tuner stops on the lowest-numbered stored channel.

MANUAL — **ADD** or **ERASE** and the current channel appear on the upper right corner of the TV screen.

a. To change the channels one at a time (higher or lower), press ▲ or ▼.

   To directly select channels, use the remote control's number buttons. See "Selecting Channels" on Page 25.

b. To add the channel to memory, press ◀ or ▶ so **ADD** appears to the left of the selected channel.

   To delete the channel from memory, press ◀ or ▶ so **DELETE** appears to the left of the selected channel.

c. Repeat Steps a and b until you store all the channels you want.

   Notes:

   - You can repeatedly press ▲ or ▼ to review the stored channels.
   - While you manually set a channel, the TV screen turns green and does not show the received broadcast signals.

Adding/Erasing Channels

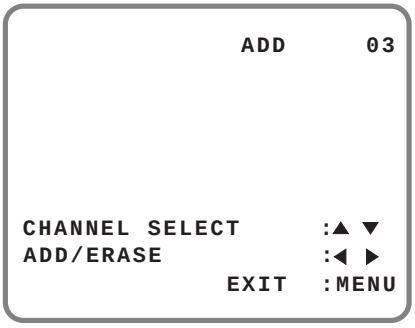
You can add a channel that is not already stored, or erase an unwanted stored channel.

1. Press **MENU** to display the main menu.
2. Press ▼ twice to highlight **CHANNEL PRESET**, then press **SET**. The channel preset menu appears on the TV screen.
3. Press ▼ to highlight **CH SET**.
4. Press ◀ or ▶ to highlight **MANUAL**, then press **SET**.
5. Repeatedly press ▲ or ▼ (or use the number keys) so the channel number you want appears on the display.

   Notes:

   - Precede a single-digit number with a **0** — for example, 01, 02, etc.
   - To enter a three-digit number, press **100**, then enter the second and third digits in the channel number.

6. Repeatedly press ◀ or ▶ so **ADD** or **ERASE** appears in the upper right corner of the TV screen, then press **SET**.



7. Press **MENU** to return to the normal screen.

BASIC OPERATION

WATCHING TV

Using the TV's Tuner

1. Turn off the VCR, or press **TV/VCR** so **VCR** disappears from the VCR's display.
2. Set the TV to the TV mode.

The antenna or cable signals pass through the VCR unaffected, as if the antenna or cable were connected directly to the TV.

Using the VCR's Tuner

1. Press **TV/VCR** until **VCR** appears on the VCR's display.
2. If you connected the VCR's **AUDIO/VIDEO OUT** jacks to a TV/monitor's audio/video input jacks, set the TV to the VIDEO mode.

   If you connected the VCR's **AUDIO/VIDEO OUT** jacks to a TV/monitor's single VHF/UHF input F-connector or separate VHF F-connector and UHF input screw terminals:

   a. Set the TV to the same channel (3 or 4) as **OUTPUT CHANNEL**.

   b. Set the TV to the TV mode.

Selecting Channels

Your VCR can receive up to 68 VHF and UHF channels, and up to 125 cable channels. The VCR displays the channels as 1–125.

Notes:

- Channels 2–13 are the same for VHF and cable TV, and cable companies usually number them as they appear on the display.
- Since cable companies sometimes designate cable channels with letters or letter-number combinations, a channel number you see on the VCR's display might differ from the channel number displayed on your cable box. You might need to experiment to determine the proper cable channel designations for your cable system. For more information, contact your local cable company.

To change the channel, press **CH** ⊕ or **CH** ⊖. The tuner changes to the next higher or lower channel stored in its memory.

Note: If you press **CH** ⊕ when the tuner is at the highest programmed channel or **CH** ⊖ when the tuner is at the lowest programmed channel, the VCR enters the audio/video mode and **AV** appears on the VCR's display. Continue to press **CH** ⊕ or **CH** ⊖ until the highest or lowest programmed channel appears.

To directly select a channel, press the number buttons on the remote control for the desired channel.

Notes:

- Always precede single-digit numbers with a 0 — for example, 01, 02, etc.
- To enter a three-digit number, first press **100** then enter the second and third digits of the channel number.

WATCHING A VIDEO TAPE

Loading a Video Tape

Insert the video cassette into the VCR's compartment with the label facing up and the tape swivel-cover facing into the compartment. Gently push in the cassette until the VCR automatically draws it in.

Caution: Never insert anything except a VHS video cassette into the cassette compartment. You might damage the VCR's internal mechanism.

When you load a tape that still has its record-protection tab (see "Record Protection" on Page 34), the VCR positions the tape next to the record/playback head for about 5 minutes. Within this period, if you start playback, recording, rewind, or fast-forward, the VCR responds more quickly.

When you stop the tape during playback, rewind, or fast-forward, the tape remains positioned next to the record/playback head for about 5 minutes. To protect the tape, the fast-response system releases after about 5 minutes.

Playing a Video Tape

1. Load a video tape.

   Note: If the record-protection tab has been removed from the tape, the VCR automatically turns on, the clock display changes to the tape counter, and playback automatically begins (see "Record Protection" on Page 34).

2. If you connected the VCR's **AUDIO/VIDEO OUT** jacks to a TV/monitor's audio/video input jacks, set the TV to the VIDEO mode.

   If you connected the VCR's **AUDIO/VIDEO OUT** jacks to a TV/monitor's single VHF/UHF input F-connector or separate VHF F-connector and UHF input screw terminals:

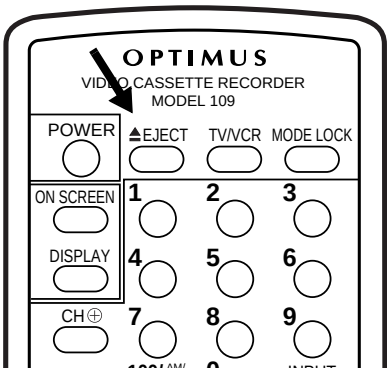
   a. Set the TV to the same channel (3 or 4) as **OUTPUT CHANNEL**.

   b. Set the TV to the TV mode.

3. If playback does not automatically begin, press **PLAY**.

   Note: During playback, the VCR automatically adjusts the tracking. However, you can also manually adjust it (see "Manual Tracking" on Page 31).

4. To stop playback before the end of the tape and eject the tape, press ⏏ **EJECT**.



Notes:

- If the video tape reaches the end before you press ⏏ **EJECT**, the VCR automatically stops the tape, completely rewinds it, ejects the cassette, then turns itself off.
- When the VCR is off, you can press ⏏ **EJECT** to eject a tape. The VCR turns itself on, ejects the tape, then turns itself off.

SPECIAL FUNCTIONS

DISPLAYS

Blue Screen

The blue-screen display appears on the TV screen when the VCR does not send a signal to the TV from either the **VHF/UHF CATV OUT** terminal or the **AUDIO/VIDEO OUT** jacks, such as:

- When you play unrecorded portions of a tape
- When you tune the VCR to an unused channel

Note: The VCR does not record the blue screen.

Follow these steps to turn the blue screen on or off.

1. Press **TV/VCR** so **VCR** appears on the VCR's display.
2. Press **MENU** to display the main menu.
3. Press ▼ to highlight **SET UP**, then press **SET**. The set up menu appears.
4. Press ▲ or ▼ to select **BLUE SCREEN**.
5. Press ◀ or ▶ to highlight **ON** or **OFF**.
6. Press **SET**.

Operation Displays

- Each time you press **ON SCREEN**, your VCR's current operating information appears on the TV screen in this sequence:

  a. **PLAY**, **STOP**, **FF**, or **REW** (if a cassette is inserted)
  AUTO ENHANCE ON or **OFF**
  Auto Repeat ON or **OFF**
  Tape speed (**SP**, **EP**)
  Channel
  Date and Time
  Tape counter

  b. Counter only

  c. No display

  d. Tape mode and/or the tuned channel for about 3 seconds

- When you press a function button (such as ■ **STOP**), the corresponding indicator appears on the TV screen for about 3 seconds.
- When you change the channel, the channel number appears on the TV screen for about 3 seconds.

Note: If you play back a poor quality (worn) or damaged tape, the function indicator or channel number might not appear on the TV.

Auto Display

When you press an operation button (► **PLAY**, ● **RECORD**, ■ **STOP**, **FF** ►►, or ◄◄ **REW**), a number button, or **CH** ⊕ or **CH** ⊖, the current operating mode or a channel number appears on the TV screen for about 3 seconds.

Tape Motion Indicators

Any time a cassette is loaded in the compartment, ◀◀❚❚▶▶ appears on the VCR's display whether power is on or off.

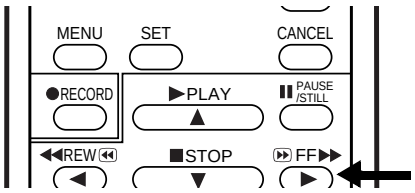
The tape motion indicators on the VCR's display show you the current operating mode and the tape's playback direction.

Indicator	Mode
▶	Play
REC ▶	Record
❚▶	Slow-Motion
❚❚	Freeze-Frame
❚❚▶	Frame Advance
▶▶	Fast-Forward/ Forward Visual Search
◀◀	Rewind/ Reverse Visual Search

MOTION CONTROLS

Fast-Forward/Rewind

To advance the tape quickly when it is stopped, press **FF** ▶▶ (or turn the shuttle dial on the VCR fully clockwise).



Caution: The shuttle dial on the VCR does not rotate 360°. Do not force it past the point where it stops.

To rewind the tape quickly when it is stopped, press ◀◀ **REW** (or turn the shuttle dial on the VCR fully counterclockwise, then release it).

Note: You cannot watch the tape's video or hear the tape's sound while you fast-forward or rewind the tape.

Freeze-Frame

Freeze-frame lets you watch the tape a single frame at a time.

To freeze the tape during playback, press ❚❚ **PAUSE /STILL**.

To advance the tape one frame at a time, repeatedly press ❚❚ **PAUSE /STILL**.

To return to the normal playback speed, press ▶ **PLAY**.

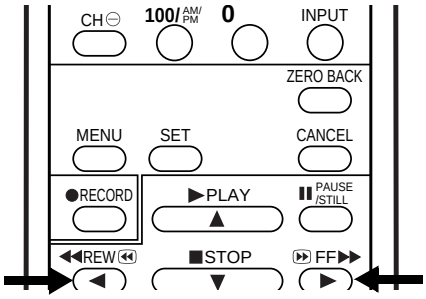
Notes:

- You can also visual search backward or forward from the freeze-frame mode (see "Visual Search" on Page 29).
- Depending on the tape speed used for recording, the freeze-frame might have reduced picture quality.
- To protect the tape, if you leave the VCR in the freeze-frame mode for 5 minutes, the VCR automatically returns to normal playback.
- If a horizontal "noise" bar appears during freeze-frame, adjust the tracking in the slow-motion mode (see "Variable-Speed Slow Motion" on Page 29).

Visual Search

Visual search lets you play a tape at a faster speed (either forward or backward) so you can search for a specific section of the tape. You can select normal or fast visual search speeds.

For normal visual search speed, during playback, press ▶▶ or ◀◀ once (or turn and hold the shuttle dial on the VCR clockwise or counterclockwise about halfway).



For fast visual search speed, during normal visual search press ▶▶ or ◀◀ (or turn the shuttle dial on the VCR fully clockwise or counterclockwise).

To stop visual search and return to normal playback, press ▶**PLAY**.

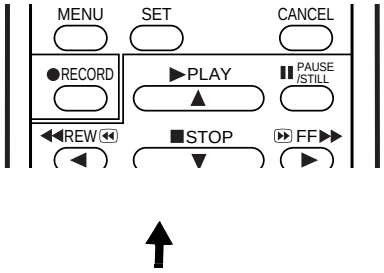
Notes:

- **VCR** must appear on the VCR's display to use visual search. If it does not, press **TV/VCR** so **VCR** appears.
- During visual search, the sound is muted and the picture quality is lower than during normal playback. The search picture is best with tapes recorded at the EP speed.

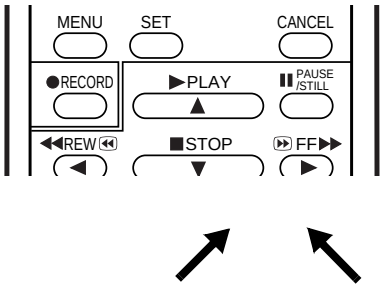
Variable-Speed Slow Motion

You can play a tape in slow-motion and vary the slow-motion speed.

To start slow-motion playback, during playback, freeze-frame, or visual search, press **SLOW**. The tape plays at 1/10 of the normal playback speed.



Press **SLOW** ⊕ to increase, or **SLOW** ⊖ to decrease the slow-motion playback speed.



Press ▶**PLAY** to resume normal playback.

Notes:

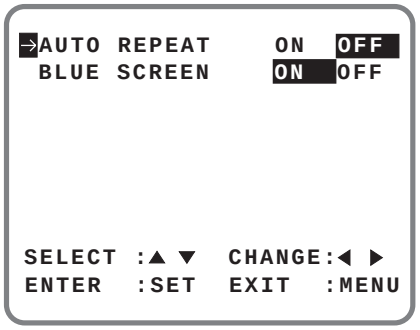
- The slow motion picture is best with tapes recorded at the EP speed.
- During slow motion, the sound is muted.
- To protect the VCR's heads, if you leave the VCR in slow-motion play for 5 minutes, the VCR automatically returns to normal playback.
- To reduce or eliminate jitter in a slow-motion picture, press ❚❚**PAUSE /STILL**, then press and hold down **CH** ⊕ or **CH** ⊖ until the picture is clear.

Automatic Repeat Playback

You can set the VCR to automatically repeat a recorded portion of a tape when the VCR finds a blank portion of more than 15 seconds.

Follow these steps to turn automatic repeat playback on or off.

1. Press **MENU** to display the main menu.
2. Press ▼ to highlight **SET UP**, then press **SET**. **AUTO REPEAT** appears on the TV screen.



3. Press ◀ or ▶ to highlight **ON** or **OFF** as desired.

   Note: If you turn on automatic repeat playback:

   - Any tape will play until the VCR finds a non-recorded portion of more than 15 seconds, then automatically rewinds and plays again.
   - If you press ◀◀ **REW** and the tape reaches the beginning, playback automatically starts.

4. Press **SET**. The display returns to the normal screen.

USING THE REAL-TIME COUNTER

Your VCR's real-time counter shows how long (in hours, minutes, and seconds) a tape has been running.

To display the real-time counter, press **DISPLAY** on the remote control so the counter appears on the VCR's display.

To reset the counter to **0:00:00**, press **CANCEL**.

Notes:

- If you rewind the tape past **0:00.00**, the display shows the count with a minus (–) sign.
- The counter does not work with blank tapes or blank portions of partially recorded tapes.
- The counter also resets when you remove a tape.

Using the Zero Back Function

At any time during playback, you can reset the real-time counter to **0:00.00**, then return to that position.

1. During playback, press **DISPLAY** on the remote control to display the real-time counter.
2. When you see the location on the tape that you want to return to later, press **CANCEL** on the remote control. The real-time counter resets to **0:00.00**.
3. To return to the **0:00.00** location at a later time during playback, press **ZERO BACK**. The tape automatically rewinds or fast-forwards to the **0:00.00** location.

INDEX SEARCH

Your VCR has the Digital Program Search System (DPSS). Each time you start recording, the VCR automatically marks the tape with an index signal.

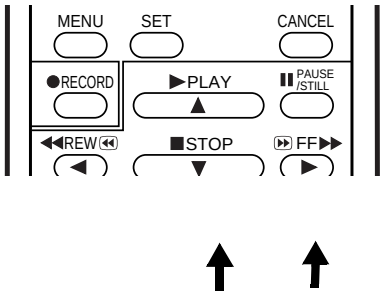
You can use index search to:

- Return to the beginning of the current recording.
- Skip to the beginning of the next recording.
- Locate a specific recording, if there are several recordings on a tape.

The VCR can search through up to 19 index signals.

Note: To make it easier to locate a particular recording, we recommend you list the real time counter reading on the tape's label each time you start a recording.

While the VCR is stopped or during playback, on the remote control repeatedly press **DPSS** ⊕ (to search forward) or **DPSS** ⊖ (to search backward) the same number of times as the number of recordings you want skip.



For example, if the tape is at recording 2 and you want to watch recording 8, press **DPSS** ⊕ 6 times to skip the remaining portion of recording 2 and recordings 3 through 7. Or, if the tape is at recording 9 and you want to watch recording 4, press **DPSS** ⊖ 6 times (to skip past recordings 9 through 5).

Each time you press **DPSS** ⊕ or ⊖, the VCR finds the next index signal and automatically starts playback.

Notes:

- The only way to add an index signal to a tape is to start a new recording.
- The only way to remove an index signal is to record over it.

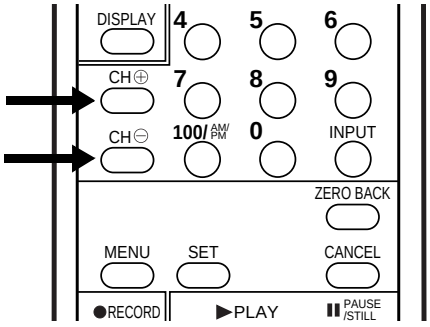
AUTO TRACKING

The VCR automatically adjusts tracking when you play a tape. **PLAY** flashes on the TV screen while the VCR is adjusting the tracking.

When different parts of the tape are recorded at different speeds, the VCR automatically readjusts the tracking at the beginning of each recording.

Manual Tracking

If the VCR's picture is poor while playing a tape, press and hold down either **CH** ⊕ or **CH** ⊖ to manually adjust the tracking.



To return to automatic tracking, press **CH** ⊕ and **CH** ⊖ at the same time.

Note: When you eject a tape or turn on the VCR, the VCR resets to auto tracking and erases any manual tracking adjustment you made.

AUTO ENHANCED PICTURE

Your VCR automatically enhances the picture quality during playback.

The auto enhanced picture function is set to **ON** at the factory. Normally leave it set to on. When you play a tape for editing or when strong noise appears on the screen, set it to **OFF.**

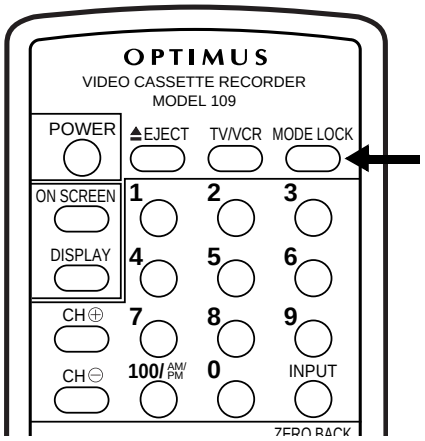
During normal playback, press **AUTO ENHANCED PICTURE** on the VCR's front panel to turn the auto enhance picture feature on or off. **AUTO ENHANCE ON** (or **OFF**) appears briefly on the TV screen.

MODE LOCK

You can lock in any selected operating mode on the VCR (including power off) to prevent accidentally changing to another mode or to prevent young children from operating the VCR. All modes remain locked until you release the lock using the remote control.

Note: The VCR still automatically releases a tape from freeze-frame and record/pause when mode lock is turned on.

To turn on mode lock, press and hold down **MODE LOCK** on the remote control until 🔒 lights steadily on the VCR's display.



If you press any button on the VCR or remote control (except **MODE LOCK**), 🔒 flickers and the button does not function. If you try to load a tape, the VCR draws it in and then ejects it.

To release mode lock, press and hold down **MODE LOCK** until 🔒 disappears.

RECORDING

You can make the following types of recordings with your VCR.

- Immediate recording
- Quick timer recording
- Automatic timer recording
- Dubbing

Notes:

- Your VCR records the audio signal and automatically adjusts the sound level while it records.
- The video tape you use for recording must have the record-protection tab in place. If the tab is removed, the VCR automatically ejects the tape if you try to record on it (see “Record Protection” on Page 34).

RECORDING SPEEDS

SP (Short Play) Playback/Record — This is the fastest recording speed and results in the highest quality picture. However, this speed uses the most tape.

LP (Long Play) Playback only — Your Model 109 VCR can play but cannot record at the LP speed.

EP (extended play) Playback/Record — This records more slowly and uses less tape, but the picture quality is not as high as with a recording made at the SP speed.

However, the Model 109 VCR has a special 19-micron record/play head that improves the playback quality of recordings made at the EP speed. This lets you conserve tape when recording and still enjoy a high quality picture during playback.

TAPE SELECTION

The quality of tape you use greatly affects record/playback quality and the life of the VCR. Use only VHS video cassettes. High-grade tape has a better oxide coating that helps prevent dirty video heads and gives the best results.

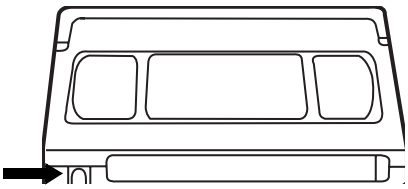
Although T-160 video cassettes offer the longest recording time, they contain thinner tape that is more likely to jam. We recommend you use T-120 or shorter length tape.

The following chart shows the maximum recording times for different-length tapes at the two recording speeds.

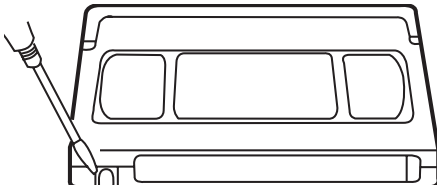
Tape	Recording Time	
	SP	EP
T-60	60 minutes	180 minutes
T-120	120 minutes	360 minutes
T-160	160 minutes	480 minutes

RECORD PROTECTION

Video cassettes have a record protection tab. With the tab in place, you can record on the tape.

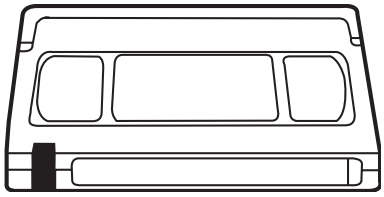


To help prevent accidentally recording over a recording, break off the tab using a screwdriver. With the tab removed, you cannot record over a tape. The cassette automatically ejects if you try to record on the tape.



Caution: Removing the record-protection tab does not prevent a bulk tape eraser from erasing a cassette.

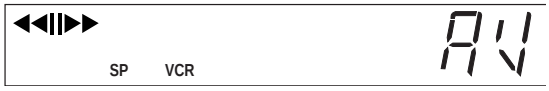
If you are sure you want to record on a video cassette that has had its tab removed, place a piece of heavy plastic tape over the record protection tab hole.



SELECTING THE SIGNAL TO RECORD

To record from the VCR's VHF/UHF signals, press **INPUT** on the remote control until **CH** and a channel number appear on the TV screen and the VCR's display.

To record from the VCR's **AUDIO/VIDEO IN** jacks, press **INPUT** until **AV** appears on the TV screen and the VCR's display.



IMMEDIATE RECORDING

Note: If you want to record from another VCR, a laser disc player, or other audio/video source with A/V outputs, see "Dubbing (Copying) a Tape" on Page 40.

Recording a Program As You Watch It

1. If you connected the VCR's **AUDIO/VIDEO OUT** jacks to a TV/monitor's audio/video input jacks, set the TV to the VIDEO mode.

   If you connected the VCR's **AUDIO/VIDEO OUT** jacks to a TV/monitor's single VHF/UHF input F-connector or separate VHF F-connector and UHF input screw terminals:

   a. Press **TV/VCR** until **VCR** appears on the VCR's display.

   b. Set the TV to the TV mode.

   c. Set the TV's tuner to the same channel as the VCR's **OUTPUT CHANNEL** switch.

   If you are using an A/B switch:

   - Set the A/B switch to A to watch an unscrambled program.
   - Set the A/B switch to B to record a scrambled program as you watch it.

2. Insert a blank cassette or one you want to record over into the VCR. ◀◀❚❚▶▶ appears on the VCR's display.
3. Press **TAPE SPEED** to select either the SP or EP recording speed. **SP** or **EP** appears on the VCR's display.
4. Press **CH** ⊕ or **CH** ⊖, or use the number buttons to select the desired channel.
5. Press ● **RECORD**. **REC** appears on the VCR's display, and the VCR records while you watch the selected channel.

   Notes:

   - You can press ❚❚ **PAUSE/STILL** during recording to temporarily pause recording (during commercials, for example). To resume recording, press ❚❚ **PAUSE/STILL** again or press ● **RECORD**.
   - If you pause the VCR for about 5 minutes while recording, the VCR automatically stops the tape. This protects the VCR's heads.

6. Press ■ **STOP** to stop recording.

Recording One Program While You Watch Another

1. Follow Steps 1-6 of "Recording a Program As You Watch It" to start recording a program.
2. Set the TV's tuner to the channel you want to watch.
3. Press ■ **STOP** when you want to stop recording.

QUICK TIMER RECORDING

Quick Timer Recording (QTR) lets you immediately start recording with the press of a button, then set it to stop at the desired time (from 1 minute to 24 hours later).

1. Tune to the program you want to record, then press ● **RECORD**. The VCR begins recording.
2. Press ● **RECORD** again. **TIMER** appears on the VCR's display, and the following information about the recording appears on the TV's screen:

   - Tape speed (**SP** or **EP**).
   - **STOP**: (recording stop time) — the time the VCR will automatically stop recording.

Note: The QTR information appears on the TV screen for 10 seconds, then disappears. If the information disappears before you finish entering all changes, simply press ● **RECORD** again.

3. To change the displayed tape speed, press **TAPE SPEED** so the desired **SP** or **EP** tape speed appears.

   Caution: Do not change the tape's speed during recording. Doing so might cause playback to jitter at the point where you changed the tape's speed.

4. To advance the displayed recording stop time, either:

   - Repeatedly press ● **RECORD** to advance the displayed stop time in 10-minute increments.
   - Repeatedly press **CH** ⊕ or **CH** ⊖ to change the displayed stop time forward or backward in 1-minute increments.

To check or change the stop time setting during QTR, simply press ● **RECORD** then repeat Step 4.

When you finish entering, checking, or changing all the QTR information, simply wait 10 seconds without pressing any key. The QTR information disappears and the VCR stops recording at the set stop time, then turns itself off.

To cancel the QTR stop time while the VCR is recording, press **CANCEL**. Recording continues.

To completely stop recording, press ■ **STOP**.

QTR Notes:

- You can program QTR information only while a tape is recording. You cannot program QTR information during playback or while a tape is stopped.
- To ensure that you record the entire desired program, start the recording a few minutes before the start of the program and set the recording stop time a few minutes after the scheduled end of the program.
- Be sure the tape length you select for QTR is long enough to record the entire program. Even though you can set the VCR to record for up to 24 hours, the actual recording time is limited by the tape's length.

AUTOMATIC TIMER RECORDING

You can program the VCR's automatic timer to select a channel, start recording at a selected time, then stop the recording at a selected time.

You can set up to eight program timers to record (on the same or different channels) any combination of events:

- One-time (any time on a specific day within a 1-year period)
- Daily (any time at the same time every day, Monday–Friday or Monday–Saturday)
- Weekly (any time at the same time every week)

Automatic timer recording consists of two steps: setting the program timer and making the automatic timer recording.

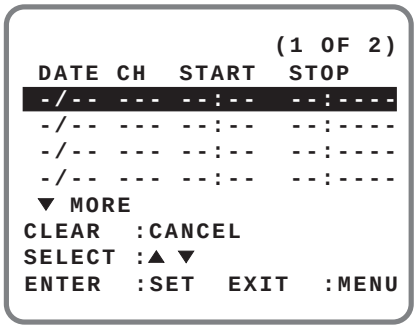
Notes:

- You must turn off the VCR for it to make an automatic timer recording.
- Before you start, make sure the VCR's clock is correctly set (see "Setting the Clock" on Page 22).

- Your VCR can hold up to eight timer programs, each with two timer-setting screens.

Setting the Program Timer

1. Insert a blank cassette or one you want to record over into the VCR. ◀◀❚❚▶▶ appears on the VCR's display.
2. Press **MENU** to display the main menu. **TIMER** appears highlighted.
3. Press **SET** to highlight the timer mode. The timer program menu displays 4 blank lines (the first line is highlighted) and **(1 of 2)**.



   Each timer program you set displays this information:

   - **DATE** (month and day of the program)
   - **CH** (channel to record)
   - **START** (start time of the program)
   - **STOP** (stop time of the program)

4. Press ▲ or ▼ to move to the program line you want to change.

   Note: If you press ▼ when the cursor is at the bottom line, a second set of 4 blank program lines, ▲, **MORE**, and **(2 of 2)** appear.

5. When you highlight the desired program line, press **SET** to start entering timer settings. The current date appears in the **DATE** column.
6. If you do not want to change the recording date, simply press ▶ to advance to the **CH** column.

   If you want to change the recording date, press ▲ to advance the date, or ▼ to select a special mode. Each time you press ▲ or ▼, the display changes as follows:

Display	Explanation
Today's Date	The currently set date.
MO-FR	Same time Monday through Friday
MO-SA	Same time Monday through Saturday
DAILY	Same time every day
SAT	Same time every Saturday
FRI	Same time every Friday
THU	Same time every Thursday
WED	Same time every Wednesday
TUE	Same time every Tuesday
MON	Same time every Monday
SUN	Same time every Sunday
Next Year's Date	One day before today's date in the following year
• •	All the dates between next year's date and tomorrow's date
Next Day's Date	The date following the current date

Notes:

- If you press ▼ when **SUN** appears on the display, the display shows one day before today's date. For example, if today's date is 1/24, the display shows **1/23** in the following year.
- You can also use the number buttons on the remote control to enter the date. For example, press **0**, **5**, **1**, and **8** to set May 18th.

7. When the highlighted line shows the date you want, press ▶ to advance to the **CH** column.
8. Press ▲ or ▼ to select the channel you want to record.

   Notes:

   - You can press and hold ▲ or ▼ to rapidly change the channel.
   - You can also use the number keys on the remote control to directly enter the channel number.

9. Press ▶. The display shows the current time. Use ▲ or ▼ to set the desired start time.

   Notes:

   - You can press and hold ▲ or ▼ to rapidly change the desired start time.
   - You can also use the number keys on the remote control to enter the start hour and minute. For example, press **1**, **0**, **2**, and **8** to set 10:28. If necessary, press **100/AM/PM** on the remote control to select AM or PM.

10. Press ▶. The display shows the same time selected in Step 9. Use ▲ or ▼ to set the desired stop time.
11. Press ◀ or ▶ to highlight the tape speed.
12. Press ▲ or ▼ to set the tape speed.
13. Double-check all the set information.
    - If it is correct, press **SET**.
    - If an entry is not correct, repeatedly press ◀ or ▶ to highlight the incorrect entry, use ▲ or ▼ or the number keys to enter the correct information, then press **SET**.
    - If you want to exit without storing the timer settings, press **CANCEL**.
14. Press **MENU** again. **TURN VCR POWER OFF FOR TIMER RECORDING** briefly appears on the TV screen.
15. Press **POWER** to turn off the VCR's power. **TIMER** appears on the VCR's display.

At the selected start date and time, the VCR automatically turns on, records the broadcast on the selected channel, stops recording at the selected stop time, then turns off.

Note: The VCR makes the timer recording even if the TV is off.

Important:

- You can turn on and operate the VCR manually prior to the set times, but the VCR makes automatic timer recording(s) only if the power is off at the set start time(s).
- Be sure that **TIMER** appears steadily on the VCR's display when you turn off the VCR. If it does not, check your programming.
- If you set up the VCR to record a cable program through a cable box, be sure to leave the cable box turned on before the timer program starts.

Automatic Timer Recording Hints:

- If a power failure occurs or the VCR is unplugged for more than about 1 hour, the VCR loses the clock setting and all timer settings.
- If you set the timer and turn off the VCR without loading a tape, **TIMER** flashes on the VCR's display.
- If you insert a tape with its record-protection tab removed and set the VCR's timer, the tape ejects and **TIMER** flashes on the display. (See "Record Protection" on Page 34.)

Monitoring an Automatic Timer Recording

1. Turn on the TV and set it to the same channel as the VCR's **OUTPUT CHANNEL** switch (3 or 4).

   Note: If you are using a TV/monitor that is connected to the VCR's **AUDIO/VIDEO OUT** jacks, just set the TV to the video mode and skip Step 2.

2. Press **TV/VCR** until **VCR** appears on the VCR's display.

Checking/Changing Program Timers

1. Turn on the TV and set it to the same channel you set the VCR's **OUTPUT CHANNEL** switch to (3 or 4).

   Note: If you are using a TV/monitor that is connected to the VCR's **AUDIO/VIDEO OUT** jacks, set the TV/monitor to the video mode and skip Step 2.

2. Press **TV/VCR** until **VCR** appears on the VCR's display.
3. Press **MENU**, then press **SET**. The timer screen appears on the TV screen.
4. Press ▲ or ▼ to highlight the line you want to check or change, then press **SET**.
   - Repeatedly press ▶ to highlight the entry you want to change, enter the correct information, then press **MENU**.
   - If the timer settings are correct, press **MENU**.

   TURN VCR POWER OFF FOR TIMER RECORDING briefly appears on the TV screen.

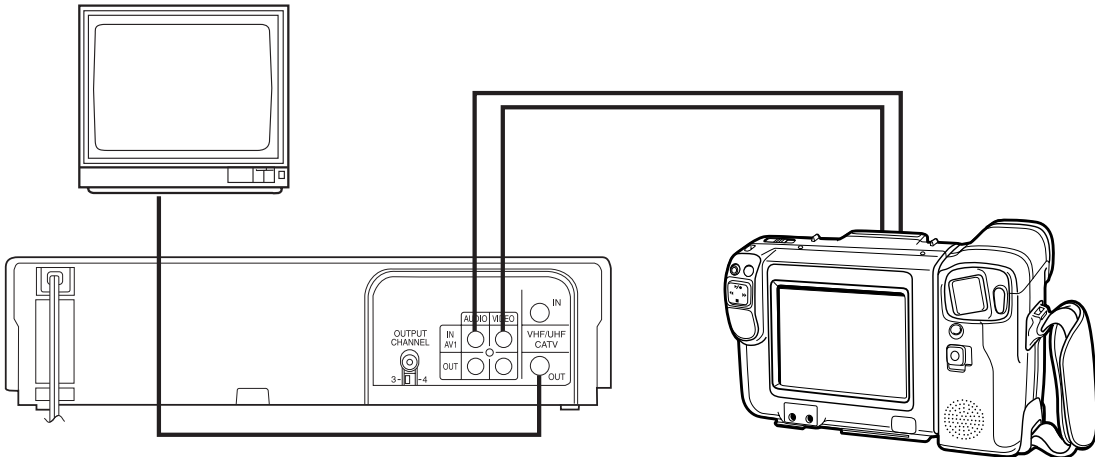
Clearing a Program Timer

1. Follow Steps 1-4 under "Checking/Changing Program Timers."
2. Press **CANCEL** to erase all the program timer's settings.
3. Press **MENU** to return to the normal screen.

DUBBING (COPYING) A TAPE

The process of recording from one audio/video device to another is called dubbing. Your dubbing source can be another VCR, camcorder, satellite receiver, or any other device with A/V outputs. You can use your VCR to record from a dubbing source.

Simply connect the source's audio/video outputs to the **AUDIO/VIDEO IN** jacks on the rear of the VCR.



Notes:

- Always use video-quality shielded cables with phono-type connectors to connect a dubbing source to the VCR. Do not use audio patch cords.
- For the best results while dubbing, hold the remote control close to the VCR's infrared window when you press a button. Otherwise, the remote control might affect the dubbing source's operation.
- The on-screen displays (channel number, tape counter, time and date, etc.) are also sent to the recording VCR. If you do not want to record the displays, see "Operation Displays" on Page 27 to turn off the display.

1. Turn on the TV and set it to the same channel you set the VCR's **OUTPUT CHANNEL** switch to (3 or 4).

   Note: If you are using a TV/monitor connected to the VCR's **AUDIO/VIDEO OUT** jacks, set the TV/monitor to the video mode.

2. Insert a blank cassette, or one that you want to record over, into the VCR. The Model 109 turns on, and ◀◀❚❚▶▶ appears on the VCR's display. Then repeatedly press **INPUT** until **AV** appears on the VCR's display.
3. If necessary, press **TAPE SPEED** on the remote control to display the desired recording speed (**SP** or **EP**).
4. Press ● **RECORD** to begin recording.
5. Start the dubbing source.
6. Press ■ **STOP** to stop recording on the VCR before it automatically stops at the end of the tape. Then stop the dubbing source.

ADDITIONAL INFORMATION

TROUBLESHOOTING

If you follow the instructions in this manual and still have trouble operating your VCR, refer to the following troubleshooting chart.

PROBLEM	POSSIBLE CAUSE	RECOMMENDATION
No power.	The power cord is not connected.	Plug the power cord into an AC outlet.
Timer recording does not work.	The program timer is not set or is set incorrectly.	Set the program timer correctly.
	The power is on.	Turn off the power.
Cannot record.	The record-protection tab is missing.	Place a piece of strong tape over the tab hole.
	The TV is not set to the proper channel.	Set the TV to channel 3 or 4.
Picture is poor on playback.	The TV's fine tuning is not set correctly.	Fine tune your TV.
	Audio/video connections are incorrect.	Recheck all connections.
	The video tape might be faulty.	Try another tape.
The playback picture is distorted.	The tracking is not properly adjusted.	Adjust the tracking.
	The video tape might be faulty.	Try another tape.
	The video heads are dirty.	See "Cleaning the Video Heads" on Page 44.
No picture on playback.	The TV is not set to the proper channel.	Set it to channel 3 or 4.
	Audio/video connections are incorrect.	Recheck all connections.
	Your TV/monitor is set to a mode other than the video mode.	Set your TV/monitor to the video mode.
No buttons work when the power is on and a cassette is inserted.	The cassette might be jammed.	Press ■ **STOP/⏏ EJECT** several times to release the cassette.
	The remote control's batteries might be weak.	Replace the batteries with fresh ones.

PROBLEM	POSSIBLE CAUSE	RECOMMENDATION
No operation when you press any button, and ⊙⊓ flashes on VCR's display.	**MODE LOCK** is on.	Turn off **MODE LOCK**.
Cannot see broadcast TV programs using the VCR's tuner.	**TV/CATV** is not set correctly.	Set **TV/CATV** correctly in the channel preset menu.
	Audio/video connections are incorrect.	Recheck all connections.
	INPUT is not set correctly.	Press **INPUT** on the remote control until **CH** and a channel number appear on the VCR's display and press **TV/VCR** so the display shows **VCR**.
Cannot record from the **AUDIO/VIDEO IN** jacks.	Connections are incorrect.	Use shielded audio/video cables with phono-type connectors to connect the source device to the VCR's input jacks.
	INPUT is not set correctly.	Press **INPUT** on the remote control until **AV** appears on the VCR's display.

CARE AND MAINTENANCE

Your Optimus Model 109 4-Head HQ VHS VCR is an example or superior design and craftsmanship. The following suggestions will help you care for the VCR so you can enjoy it for years.

Keep the VCR dry. If it gets wet, wipe it dry immediately. Liquids might contain minerals that can corrode the electronic circuits.

Use and store the VCR only in normal temperature environments. Temperature extremes can shorten the life of electronic devices and distort or melt plastic parts.

Keep the VCR away from dust and dirt, which can cause premature wear of parts.

Handle the VCR gently and carefully. Dropping it can damage circuit boards and cases and can cause the VCR to work improperly.

Use only fresh batteries of the required size and type in the remote control. Old batteries can leak chemicals that damage electronic parts.

Wipe the VCR with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the VCR.

Modifying or tampering with the VCR's internal components can cause a malfunction and might invalidate your VCR's warranty and void your FCC authorization to operate it. If your VCR is not performing as it should, take it to your local RadioShack store for assistance.

Cleaning the Video Heads

Your VCR's video heads will require cleaning after long use. Dirty video heads can cause the playback picture to become blurred even though the audio signal is clear. VCR head cleaning kits (Such as Cat. No. 44-1203) are available through your local RadioShack store. Clean the heads only when the picture quality is affected.

Serious problems require cleaning by a trained technician.

Servicing Your VCR

There are no user-serviceable parts inside your VCR. If you encounter a problem that you cannot correct using this manual and its troubleshooting guide, take the VCR to your local RadioShack store for assistance.

Storing Your Video Cassettes

Unless you are making an automatic timer recording, eject and store the cassette when you finish using it. This helps protect the cassette and the VCR's internal mechanisms from dust.

Place your video cassettes in their protective boxes and store them in a cool, dry, dust-free environment. Store the cassettes on end, not on their sides. This prevents improper setting of the cassette's spools.

Note: Tape can become wound too tightly around the cassette's spools after playing a cassette numerous times. This can cause the cassette to improperly load and automatically eject when you insert it. On most cassettes there is a brake-release plunger on the bottom center of the cassette. Use the tip of a pen or pencil to press the plunger. This loosens the tape.

SPECIFICATIONS

Television System ..... NTSC Standard Color

Signal Recording System ..... Four–Head Double Azimuth

Tape Width ..... 1/2 Inch

Tape Speed:

- SP ..... 1.31 Inch/sec (33.35 mm/s)
- LP ..... 0.65 Inch/sec (16.67 mm/s)
- EP ..... 0.43 Inch/sec (11.12 mm/s)

Tuner Channels:

- VHF 2–13
- UHF 14–69
- CATV 125

RF Converter ..... Built–In VHF Converter

Converter Output ..... Channel 3 or 4

Terminals:

- Antenna Input ..... VHF/UHF: F Type
- Antenna Output ..... VHF/UHF: F Type
- Video Input/Output ..... Phono Connector
- Audio Input/Output ..... Phono Connector

Video Output Level ..... 1.0 Vp–p

Video Output Impedance ..... 75 Ohms

Audio Output Level ..... –8 dBV

Audio Output Impedance ..... 1 kOhm

Video Input Level ..... 0.5–2.0 Vp-p

Video Input Impedance ..... 75 Ohms

Audio Input Level ..... –8 dBV

Audio Input Impedance ..... 47 kOhms

Video S/N Ratio (weighted):

- SP ..... 43 dB
- EP ..... 40 dB

Clock Indication ..... AM/PM System

Audio S/N Ratio:

SP.....43 dB

EP.....40 dB

Frequency Response:

SP..... 80 Hz–10 kHz

EP..... 80 Hz–5 kHz

Power Requirement .....120 V, 60 Hz

Power Consumption.....20 Watts

Dimensions (HWD) ..... $3\frac{5}{8}$ ¥ 15 ¥ $11\frac{3}{8}$ Inches
(9.3 ¥ 38 ¥ 28.9 cm)

Weight (Approx.) ..... 7.9 lbs
(3583 g)

Specifications are typical; individual units might vary. Specifications are subject to change and improvement without notice.

16-546.fm Page 47 Tuesday, July 20, 1999 4:25 PM

NOTES

RadioShack Limited Warranty

This product is warranted against defects for 90 days from date of purchase from RadioShack company-owned stores and authorized RadioShack franchisees and dealers. Within this period, we will repair it without charge for parts and labor. Simply **bring your RadioShack sales slip** as proof of purchase date to any RadioShack store. Warranty does not cover transportation costs. Nor does it cover a product subjected to misuse or accidental damage.

EXCEPT AS PROVIDED HEREIN, RadioShack MAKES NO EXPRESS WARRANTIES AND ANY IMPLIED WARRANTIES ARE LIMITED IN DURATION TO THE DURATION OF THE WRITTEN LIMITED WARRANTIES CONTAINED HEREIN. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

We Service What We Sell *10/95*

RadioShack
A Division of Tandy Corporation
Fort Worth, Texas 76102

TINS–2860AJZZ
6A6
Printed in Malaysia